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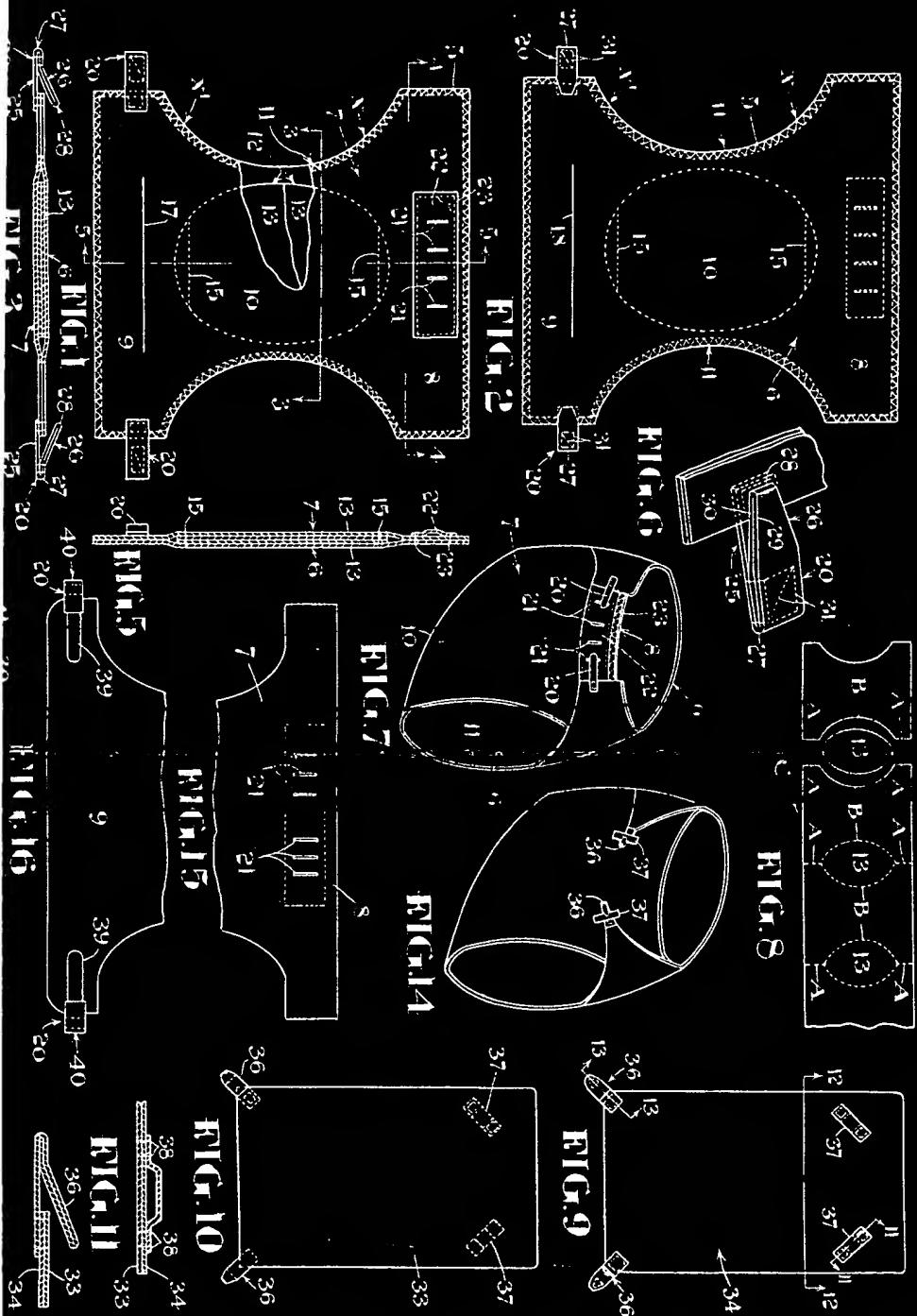
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493.819 COMPLETE SPECIFICATION





PATENT SPECIFICATION

Application Date: Feb. 15, 1938. No. 4737/38.

493.819

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COMPLETE SPECIFICATION

Improvements in or relating to Diapers

I, CHARLES ETON LEWIS, a Subject of the King of Great Britain, of Lewis Shirts Limited, Court Street, Truro, Nova Scotia, Canada, do hereby declare the nature of this invention and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement:—

This invention relates to improvements 10 in diapers.

It is an object of this invention to provide a diaper which may be folded about the body of a baby and secured in place more conveniently than the diapers now 15 in use and which, in applied position, gives a snug comfortable fit without binding or forcing the baby's legs into unnatural positions.

It is also an object of this invention to 20 provide a diaper equipped with improved fastening means comprising hooks permanently attached to one end or waistband portion of the diaper for interlocking engagement with cooperating means 25 carried by the remaining end or waistband portion to secure the diaper in place after it has been folded around the body of the baby.

It is also an object of this invention to 30 provide a diaper of the character described in which the hooks and loop forming members carried by the ends or waistband portions of the diaper are made entirely of fabric or non-metallic material that is 35 not likely to cause personal injury.

According to the invention the diaper, which is of the kind which is adapted to be secured in position by hooks engaging slots or the equivalent, comprises a crotch 40 fitting part terminating in waistband parts at opposite ends of the diaper, one of said ends having openings and the other end having non-metallic hook-like devices to engage the openings.

Proceeding now to a more detailed description of this invention reference will be had to the accompanying drawings, in which:—

Fig. 1 is a plan view showing the outer 50 or exposed side of a diaper made in accordance with this invention.

Fig. 2 is a view similar to Fig. 1 but showing the inner or skin engaging side

of the diaper.

Fig. 3 is a horizontal sectional view 55 taken substantially along the line 3—3 of Fig. 1.

Fig. 4 is a horizontal sectional view 60 taken substantially along the line 4—4 of Fig. 1.

Fig. 5 is a vertical sectional view taken substantially along the line 5—5 of Fig. 1.

Fig. 6 is an enlarged fragmentary detail view showing one of the fastening 65 hooks.

Fig. 7 is a perspective view showing the appearance of the diaper in its folded or applied condition.

Fig. 8 is a view illustrating the preferred method of cutting a piece of material to provide the inner and outer sheets of the diaper and the pad forming sections which are interposed between these sheets.

Figs. 9 and 10 are plan views corresponding, respectively, to Figs. 1 and 2 but showing a modified type of diaper.

Fig. 11 is a sectional view taken along the line 11—11 of Fig. 9.

Fig. 12 is a sectional view taken along the line 12—12 of Fig. 9.

Fig. 13 is a sectional view taken along the line 13—13 of Fig. 9.

Fig. 14 is a perspective view showing 85 how the diaper of Figs. 8 and 9 appears in folded or applied position.

Figs. 15 to 17 inclusive are detail views illustrating slight modifications.

My preferred form of diaper is shown 90 in Figs. 1 to 7 inclusive. It comprises two sheets of suitable fabric having their marginal edges united by stitching 5. When the diaper is applied the sheet 6 is next to the skin of the baby and may therefore be termed the inner sheet to distinguish it from the outer or companion sheet 7. Each sheet is cut from the piece so that it presents full width end or waistband portions 8 and 9 joined together by a relatively narrow intermediate crotch fitting portion 10, the latter being bounded by concave curved edges 11 which are preferably of semi-oval curvature. The diaper is folded about the body 105 so that the portions 8 of the sheets 6 and

7 are disposed to form the front section of the waistband with their ends overlapped by the corresponding ends of the portions 9 which are disposed to form the rear section of the waistband. The two waistband sections are then secured in place by the improved fastening means hereinafter described.

A diaper, shaped and applied as described herein, has important advantages over the usual form of diaper in that it may be secured in place to give a close comfortable fit without binding and without forcing the baby's legs into unnatural positions. In this connection it may be pointed out that the folding of the curved edges 11 incident to the application of the diaper provides comfortable fitting leg openings at opposite sides of a relatively narrow comfortably fitting crotch portion 10, it being noted that the narrowest width of the crotch portion coincides with the line along which the body portion of the diaper is folded around the body of the baby.

A pad 12 is interposed between the sheets 6 and 7. This pad may be made of various suitable materials and of either single or multi-ply construction. As here shown it comprises two superposed and substantially oval-shaped layers or plies 13 made of the same material as the sheets 6 and 7. This type of pad is preferred because it can be made of material that would otherwise be wasted in cutting out the sheets 6 and 7. This is illustrated in Fig. 8, where A and B represent, respectively, straight and curved portions of the transverse lines along which a piece of fabric C is cut to provide the aforesaid diaper sheets 6 and 7. The oval-shaped piece 13 (Fig. 8) that would otherwise be wasted in this method of cutting are used to form the component layers or plies of the pad 12. In this connection it may be definitely pointed out that each pad 12 may consist of a single layer 13 or of any desired number of such layers assembled in superposed relation.

The component sheets 6 and 7 of the diaper may also be cut from the piece so that the edges 11 are semi-circular instead of semi-oval. In this case the pad forming pieces corresponding to the pieces 13 in Fig. 8 will be circular instead of oval. Other slight variations in the shape of the sheet and pad sections which involve no serious waste in the cutting of these parts from the piece are also contemplated as falling within the scope of this invention.

In the construction shown in Figs. 1 to 4 inclusive, the pad enclosing envelope formed by the sheets 6 and 7 is permanently closed on all sides by the stitching

5 and the pad itself is attached to the sheet 7 by additional stitching 15. This construction is not absolutely essential since the pad 12 may be free of attachment to the sheets 6 and 7 and the pad enclosing envelope formed by these sheets may be provided with a suitable opening for the convenient insertion and removal of the pad. Where convenient removal of the pad is a consideration, this may be accomplished by providing one of the sheets 6 and 7 with a slit affording an opening through which the pad may be conveniently applied or removed. This slit may be formed in sheet 6 as indicated by the line 17 in Fig. 1 or it may be formed in sheet 7 as indicated by the line 18 in Fig. 2. The same result could also be accomplished by omitting the stitching 5 between the points X and X' in Fig. 1 so that corresponding edge portions of the sheets 6 and 7 extending from the point X to the point X' are free of attachment to each other and may be readily separated to provide for placement or removal of the pad.

Fastening hooks 20 are permanently secured to the ends of the band portion 9 of the diaper. When the latter has been folded about the body of a baby, as previously described, these hooks are interlocked with the waistband portion 8 by engaging them in selected openings 21 formed in a band 22 sewed to the waistband portion 8 at the outer side of the sheet 6. As shown in Fig. 7, the ends of the waistband 9 overlie the corresponding ends of the waistband 8 so that the hooks 20 may be readily engaged in the openings 21. The band 22 is shown as an elongated rectangular strip of fabric having its marginal portions fastened to the waistband 8 by stitching 23. The length of the band and the number of openings 21 may be varied to increase the range of adjustability of the diaper. In this connection it will be readily seen that, in the applied position of the diaper, the size of the waistband may be adjusted by engaging the hooks 20 in selected openings 21 to give a snug fit without causing uncomfortable pressure at the waist line.

The hooks 20 may be made of any suitable fabric or fabric tape possessing the stiffness and other characteristics necessary to enable the hooks to serve their intended purpose. They may also be replaced by similar hooks made of suitable non-metallic material other than fabric such, for example, as celluloid or similar suitable substance. Metallic hooks, while capable of being used, are not recommended since they are more liable to cause personal injury and have other disadvantages. Fabric hooks made in the par-

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ticular manner hereinafter described have been found to be the most suitable for the purpose since they are washable with the diaper itself and are less liable to become 5 detached or to cause personal injury.

In its preferred embodiment, each hook 20 is formed by folding a narrow strip of suitably stiffened fabric or tape to provide a single ply shank 25 and a double 10 ply bill 26. The fold lines along which the strip is folded to provide the single ply shank 25 and the two ply bill 26 are indicated at 27 and 28. Adjacent the outer fold line 27 the two plies 29 and 30 15 of the bill are fastened to the outer portion of the shank 25 by stitching 31. This leaves the free portion of the bill in the form of a tab projecting inwardly toward the body of the diaper. It is this free portion 20 of the bill which is passed through the openings 21 in the band 22 when fastening the waistband sections of the diaper around the body of the baby.

According to the modification shown in 25 Figs. 9 to 13 inclusive, the diaper comprises a rectangular strip of fabric which may be of single or multi-ply construction. In the illustrated example, the diaper is formed by doubling a piece of 30 fabric to provide a rectangular strip comprising an inner ply 33 and an outer ply 34, the line of fold being indicated at 35. Fabric hooks 36, made in the same manner as the previously mentioned 35 hooks 20, are stitched to and project beyond the corner portions of the diaper. These hooks are adapted, as shown in Fig. 14, to be threaded through and hooked over suitable fabric loops 37 40 stitched to the body portion of the diaper adjacent the end remote from the hooks. The hooks 36 are preferably stitched to the corner portions at one end of the diaper so that they are divergent with respect to each other and diagonally inclined with respect to the adjacent end edges of the diaper. The loops 37 are located a substantial distance inwardly from the adjacent side and end edges of 45 the diaper and are also inclined so that, as viewed in Fig. 9, the upper ends of the loops are closer together than the lower ends. These loops are stitched to both plies 33 and 34 of the diaper as indicated 50 at 38 in Fig. 12. After the diaper has been folded as shown in Fig. 14 the flexible bill portions of the fabric hooks 36 are passed through and hooked over the loops 37 to hold the diaper securely in 55 place.

According to the modification disclosed in Fig. 15, the band 22 previously described in connection with Fig. 1 is omitted and the openings 21 formed in 60 the outer diaper sheet 7.

The hooks 20 may be constructed as shown in Figs. 16 and 17. In this case each hook is made in two parts designated 39 and 40. The part 39 comprises a thin strip or tongue made of rubber, celluloid, or other suitable material possessing the requisite stiffness and flexibility. This part is joined to the waistband 9 of the diaper by the part 40 which comprises a tubular length of textile fabric. One end of the tubular fabric 40 provides a pocket in which an end of the tongue or strip 39 is fastened by suitable stitching or other fastening means 41. The other end of the tubular fabric 40 is suitably fastened to one extremity of the diaper waistband 9 as shown more particularly in Fig. 17. The fabric member 40 is doubled upon itself and stitched as indicated at 42 so that the tongue or strip 39 is normally directed upwardly to overlie the waistband 9.

In order to avoid the exposure of raw edges, especially along the leg engaging portions 11, the edges of the sheets 6 and 7 are preferably turned inwardly and then united by the stitching 5.

Having now particularly described and ascertained the nature of my said invention and in what manner the same is to be performed, I declare that what I claim is:

1. A diaper comprising a crotch fitting portion terminating in waistband portions at opposite ends of the diaper, the waistband portion at one end of the diaper having spaced openings intermediate the ends thereof, and non-metallic hook-type fasteners attached to the other waistband portion in positions to engage 105 in the openings when said waistband portions are folded about the waist for securing the diaper therearound.

2. A diaper comprising a crotch fitting portion terminating in waistband portions at opposite ends of the diaper adapted to be folded about the waist substantially in overlapping relation, the waistband portion at one end of the diaper having a row of openings or slits 110 therein along the edge thereof and intermediate the ends of said edge and non-metallic hook-type fasteners attached to the opposite ends of the other waistband portions in positions to engage selectively 115 in the openings or slits when said waistband portions are folded about the waist for adjustably securing the diaper therearound.

3. A diaper comprising inner and 125 outer sheets secured together and having a crotch fitting portion terminating in waistband portions at opposite ends of the diaper, the waistband portions being of sufficient length to be folded about the 130

waist in overlapping relation, the waistband portion at one end of the diaper having a fabric portion thereof provided with a row of openings or slits therein
5 along the edge thereof and intermediate the ends of said edge, and stiffened-fabric hook-type fasteners attached to the opposite ends of the other waistband portion to engage selectively in the openings or

slits when the waistband portions are 10 folded about the waist for adjustably securing the diaper therearound.

Dated this 15th day of February, 1938.

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